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THE

Journal of the Society of Arts,

AND OF

THE INSTITUTIONS IN UNION.

No. 104. FRIDAY, NOVEMBER 17, 1854. Vol. III.

Journal of the Society of Arts.

FRIDAY, NOVEMBER 17, 1854.

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FIRST ORDINARY MEETING.

WEDNESDAY, NOVEMBER 15, 1854.

The First Ordinary Meeting of the One-Hundred and First Session, was held on Wednesday, the 15th instant, Viscount Ebrington, Chairman of Council, in the chair.

The following Institutions have been taken into Union since the last announcement:—

376. Clonmel, Mechanics' Institute.
377. Derby, Working Men's Institute.
378. North Devon, Associated Parochial Lending Libraries.
379. Waterford, Mechanics' Institute.

Viscount EBRINGTON, as Chairman of Council, read the following

ADDRESS.

If preceding Chairmen of Council, when preparing to deliver the customary Address at the opening of the Session, have felt it necessary to ask your indulgence, how much more must I require it, when, after so short an experience as a member of the Society, I find myself by the kindness of the Council invested with the responsibilities of that honourable office.

Short, however, as my experience has been, I have seen abundant evidence, not only from its older records, how useful the Society has been during the earlier part of its first centenary, accomplished last year, but also from its actual working, how much service it is rendering, and will I trust continue to render, during the next and future centenaries of its existence. My predecessor in this chair, Mr. Chester, to whose energy and ability you owe so much, in opening your hundredth Session last year, gave you a luminous and interesting review of what had been the Society's operations from the first meeting of our twelve spirited founders in Rawthmell's Coffee-house, down to the first meeting of the general Conference of representative members from some 368 Institutions in Union with us in this our present statelier home. That Conference, as you are well aware, was the first fruits of the happy movement made in 1852, under the appropriate presidency of the Marquis of Lansdowne, to change the character of the Society, and to enlarge the sphere of its operations—to make it no longer a merely Metropolitan Society, but the centre of a confederation of once isolated and still independent kindred institutions throughout the United Kingdom,—institutions all, like our own, voluntarily established and maintained without the aid or interference of the State, by men of every rank and degree, of every shade of religious and political opinion.

It will be my duty to start from that point, and shortly glancing at so much of the programme of operations unfolded by my predecessor as has been accomplished within the last year, to lay before you that which the Council proposes for the coming Session.

One of the first points attempted to be gained by this Union, was the interchange among the various Institutions of their several experiences of lecturers and lectures, and the consequent establishment of a register of both. I am happy to say that the plan determined upon in the first instance by the Council after much consideration, has answered extremely well—the plan, I mean, of making the list issued by the Society a simple register of lecturers, their subjects, and in some cases their terms, with the names of the Institutions attached by whom they were recommended, without any note or comment on the part of the Society of Arts. Arranged in a form convenient for reference, and systematically tabulated, this has afforded many facilities both to lecturers and audiences; and if not absolutely approved of by every one in every particular without exception, has certainly met with very general and most encouraging acquiescence. The loan of photographs, nature prints, and objects of art, &c., to different Institutions in turn, has been attended with decided advantage; nor has the arrangement been less successful for cheapening books, maps, instruments, &c., to the members of the confederated Institutions.

But it was soon felt that merely providing facilities for the acquisition of knowledge through the oral instruction of lectures, or through study in classes, or self-instruction from lending-library books, would very imperfectly answer the ends we had in view. It was felt that for these voluntary students some further incentive was wanting to ensure a course of systematic and continuous application; and that some reward was due to such application, over and above that inward satisfaction which is its necessary concomitant. It was, moreover, felt that, while the whole community could not fail indirectly to profit by the increased knowledge acquired, and the habits of regular study formed by so many of its members; others, besides the students, were directly interested in the proficiency of each student being ascertained and made known. It was felt that employers and landlords were really concerned, not only in the spread of education among the aggregate of those whom they employed, or had as tenants; but also in being able to estimate correctly the amount of education of different individuals appearing, or seeking to appear, on their pay lists or rentals.

For this purpose some system of examination was clearly necessary. Most who hear me will remember the admirable Report, with its valuable Appendices, which emanated from the Committee of the Society upon Industrial Instruction last year. Having in that report so clearly had pointed out to them what was wanting in the way of education in the country, it became the duty of the Council to consider what could be done. They determined accordingly to endeavour to procure a number of persons, whose names would be a guarantee for their pre-eminent fitness for the task, to consent to act as examiners into the proficiency acquired in different branches of knowledge by members of the different Institutions in Union with the Society of Arts. The eminent men thus appealed to, several of them being of European celebrity, with a kindness, liberality, and self-devotion, which I am sure will be appreciated by their countrymen, at once undertook this great and laborious public service, provided a satisfactory scheme were proposed to, and adopted by, the Conference of Representatives from the confederated Institutions.

Thus encouraged, the Council submitted a scheme for the purpose to the Conference last July, and the Conference unanimously adopted it, with one addition, which I had the honour of moving, viz.—

> "That the Council be requested to prepare a plan for extending to the inhabitants of rural and other districts, where the establishment of Mechanics' Institutes is difficult or impossible, the benefit of connection with this Society, and of the Local Examinations proposed to be established by the Society in concert with the Local Institutions in Union with it."

I will not fatigue the meeting with any recapitulation of the arguments I urged in the letter I addressed, nominally, indeed, to Mr. Chester, but in reality, through the Journal, to the members of our Confederation, or of those which I pressed *viva voce* upon the Conference. Suffice it to say that the resolutions, which comprised most, if not quite all, that I wished, having been voted, it has devolved upon the Council to carry it out. The Council found that the Hants and Wilts Educational Association afforded a bright example, not only of the useful working of such Institutions in a district for the most part purely agricultural, and sparsely inhabited; but also of a remarkably fair and practical plan for bringing them into union with us. We have accordingly suggested it for imitation in other rural districts, as affording probably the most convenient and equitable mode of extending to the inhabitants of such districts the benefits of membership of our confederation, benefits of which that of examination will, I hope, be henceforth one of the most prominent.

In the country things move more slowly than in towns. A short delay will, therefore, probably elapse before this sort of organisation becomes at all widely extended. I entertain, however, no doubt but that the middle classes of this country, and the *elite* of that next below them, urgently require and keenly feel the want of an educational test, and of some generally recognised certificate of acquirements analogous to the University degrees and the "passing" for various professional positions; and I have therefore equal confidence that this organisation of our Society, if it be properly adjusted, so as really to meet that want, will be equally successful, and will render valuable service to the community.

The next subject to which I am naturally led when speaking of education, is our great feat of last session—that cosmopolitan collection, if I may so term it, of educational appliances, and assembly of educational experts and amateurs—the Educational Exhibition—for starting which we are mainly indebted to the same enlightened liberality as we were for originating the never-to-be-forgotten Exhibition of 1851. Without our Royal President's munificent aid and hearty encouragement, the notion of an Educational Exhibition must have remained a mere vague aspiration, instead of becoming an accomplished fact. Long may that illustrious Prince continue to consult his truest dignity and best interests by associating his name with undertakings like these; giving them the benefit, not only of his Royal patronage, but also of his enlightened and practical supervision, and obtaining from us in return a constantly increasing measure of honour and affection. While thus engaged in cultivating the lofty and safe, yet most fruitful neutral ground of Social and Educational Improvement, of Encouragement to Arts, Manufactures, and Commerce, His Royal Highness may defy the ingenuity of calumny and misrepresentation.

The exhibition itself and the lectures kindly given in connection with it by many eminent educational authorities, both English and Foreign, surpassed my most sanguine expectations, both as regarded the amount of curious and valuable educational appliances from all parts collected together under one roof; and also as regarded the evidence afforded of the attention now paid to the art of education throughout the civilised world. The interesting collection of results proved, as far as such inanimate witnesses could prove, what we trust will be more clearly and usefully shown by many of the rising generation, that real progress has been made of late years in developing the mental and bodily powers of children while training them up in the way they should go.

If the pecuniary results of the Exhibition as a mere show, may not have come up to the sanguine expectations of some among us; if the apathy of too large a portion of the public prevented their bestowing even half an hour upon an Exhibition, which to parents at least ought to have been irresistibly attractive, the fact that many did visit it with profit, would of itself have in great measure consoled us. But as it is, we are amply rewarded for any sacrifice of money or trouble it may have cost us. For I am happy to be able to announce to you the fact of her Majesty's Government having officially intimated their opinion that a National Museum of Educational appliances is desirable; and their wish that our Educational Exhibition should be rendered available as the nucleus of a permanent Educational Museum for the nation.

The next subject to which I shall call your attention is one of a kindred character in some respects, as bearing upon the acquisition of knowledge and the improvement of the taste of our countrymen, while contributing greatly to their enjoyment for the time, and their store of pleasant and kindly recollections hereafter,—the plan I mean of encouraging members of the Institutions in Union with us to visit the great Exhibition at Paris next summer, by offering them facilities in the shape of reduced fares for the journey to and fro, pre-engaged lodgings, pre-arranged meals, and ready organized guides and interpreters while there. The idea having been submitted to the Conference, and unanimously approved by them, the Council has been requested to take measures for carrying it into effect. It is since been engaged in doing so accordingly. We have found, on the part of some of the Railway authorities a very liberal disposition, and, thanks to our friend Mr. Clark's assistance, we have the prospect of getting cheap and comfortable arrangements made at Paris.

It is obvious, however, that unless the French Government kindly allowed some relaxation of the passport system in the case of such Excursionists, they could not proceed to Paris without considerable inconvenience and delay. But I am happy to be able to announce to you that the Imperial Government has shown every disposition to meet the applications on this subject in a most liberal spirit; and I will venture to pronounce that in so doing it will evince not less wisdom than kindness: for no surer means could be found of converting the happy alliance between the two Governments into a cordial friendship between the two nations, than facilitating to the utmost, intercourse, both social and commercial, between them. And I cannot help anticipating very satisfactory results from the personal experience of a French welcome by hundreds—nay, I hope, thousands—of our countrymen, returning to their homes in all parts of the United Kingdom with quickened feelings of good-will to their neighbours on the other side of the Channel. At the same time, greatly as in our character of Englishmen we should rejoice at thus in any degree contributing to cement that auspicious alliance which is the best guarantee for the liberties, and, therefore, for the progress of Europe; and happy as we should feel in setting the example of an extension to the masses of that exchange of public visits and hospitality with other countries, till now confined to crowned heads and great personages, or at most to the wealthiest muncipalities: yet those objects would hardly have come within the scope of our operations as a Society for the Encouragement of Arts, Manufactures, and Commerce. But those who remember how leading a part this Society took in starting the Great Exhibition of 1851, first conceived in its full comprehensiveness by our Royal President, and, to a great extent worked out, too, under his enlightened superintendence, will not wonder that we should look with peculiar interest and sympathy at the magnificent effort now making in France to equal, if not surpass, that triumphantly successful realisation of a truly grand and noble conception.

Those who have either heard or read the remarkable series of discourses delivered in this Hall on the Great Exhibition's results, considered in their different aspects, will not be surprised that we should have desired to place within reach of the poorer as well as the richer classes of our countrymen the pleasure and advantage of visiting its Parisian successor, the most promising of all those that have yet sprung out of it. But though most, if not all, of its various influences for good have been so eloquently dwelt upon in this spot by those who were pre-eminently qualified to trace and to appreciate them; yet there is one so peculiarly bearing upon the point under our consideration, that I must venture to call your attention to it for a moment. And in doing so I will borrow the striking language of a most valued friend of mine, for whom I feel the more anxious publicly to testify my admiration and regard, because he has lately been assailed with the most malignant calumnies. Indeed, as if the misrepresentation of his motives and proceedings were not enough, unimpeachable facts have been actually denied, and official records misquoted against him in Parliament.

"The Exhibition," writes Mr. Chadwick, a real friend but not a flatterer of the labouring classes, "the Exhibition may be treated as a consecration of industry giving an interest to all engaged in it. Our tendency has been to carry on work for the money alone. The anticipation of the results is, of course, sufficiently pleasurable to those who make much money. But, however good the wages may be, the working for them without anything else is a toil and a drudgery." "It is less the masters than the men I look to, making their work interesting to them, and thereby reducing the drudgery and mitigating the toil, which I think an immense object." "Formerly there was a liking for the work apart from the money. It is so now amongst the foreign artizans, where they are required, on admission to the guilds, to produce '*master-pieces.* Now these Exhibitions—the regard and respect paid to work as work, tend to give it, with every class, an interest in addition to the money interest—to relieve toil without diminishing the pleasure from the anticipation of the more tangible reward, the pecuniary payment for it. The competition and juxtaposition of the results (*i.e.* the work) got by Exhibitions, the direction given to exertion by prizes, are suggestive as well as stimulative. If there were nothing else got by them, there is a harmless amusement, which in itself is a great social gain."

One of the most eloquent writers of our day, Mr. Ruskin, repeatedly alludes to this "loving" spirit, both of the artist and of the artizan, as having been one main cause of the great superiority of the decorative work of earlier over that of later times. That love of their work which in the eyes of those engaged in it, as of him who views it aright, dignifies even the humblest callings. As old George Herbert quaintly sings: "Who sweeps a room as in Thy sight makes that and the action fine." Such a spirit put out of the question any such unnatural line of demarcation as that since attempted to be established to determine what kind of work is, and what is not, consistent with the dignity of art,—what is work for an artist, and what only for an artizan. I heard the other day of a needy young artist refusing on such grounds to furnish designs to a spirited wholesale stationer, who offered to pay him handsomely for them, because they were to be used for Valentines, and not as separate pictures or prints. If Valentines are to continue to be published—and I have no reason to believe that his refusal has put a stop to the practice—why should we not have them graceful and refined, instead of coarse and vulgar? Far different was the spirit in which Raphael decorated pottery ware, and gave designs for tapestry; in which Matsys the blacksmith wrought, and Palissy the potter laboured, even building with his own hands the furnace for the exquisite enamel wares which have immortalised his name. Far different was the spirit in which, as Michelet beautifully describes it, hundreds of nameless masons and stonecutters in the middle ages, not claiming, though well-deserving, the loftier title of sculptors, worked away at the decoration of church and cathedral, of chapel and shrine; finishing the hidden back of every figure as scrupulously as the visible front; regardless of anything except the perfection of the result, and indifferent as to human eye ever seeing or appreciating their conscientious labours. Happily in these later times we have had something of a revival of this good old spirit. We have seen many examples latterly of artists of the highest class not thinking it beneath them to furnish graceful designs for household articles in common use. There are many living, but one not long deceased I may be perhaps allowed to mention—the late Mr. Pugin, the stores of whose antiquarian lore and abundant fancy contributed so greatly to enrich the Mediæval Court at the Great Exhibition.

But to return from this digression. No one could fail of being struck in 1851 with the general superiority in design, and more especially in colouring, of the ornamental products of French industry over ours. The principles both of design and colour have with them long been carefully studied. Thanks very much to the exertions of one of our most conspicuous members, much progress has been made here since that time. But we have still much to learn in these respects; and I think we may safely expect the taste of those of our artizans who visit Paris next year, to be improved by seeing the marvels of grace and beauty sure to be exhibited by the French, and the specimens of harmonious colouring likely to be contributed from the East. I venture to hope also that the spectacle of what may be done in a short time by spirited and systematic operations in straightening and widening thoroughfares, and generally in improving the architectural beauty and sanitary condition of a town, will not be thrown away upon the visitors from some of our huge hideous manufacturing towns, or from this monster metropolis of ours, with its filthy quayless river and narrow overcrowded streets. Well may London excursionists to Paris blush at the contrast to that vigorous administration presented by the costly parsimony and obstructive conflict of divided jurisdictions, which have so long paralysed the march of improvement in our incalculably wealthier Capital.

And this reminds me of the Committee appointed last session by the Society to inquire into the system upon which the Parisian improvements have been conducted, and into their probable ultimate pecuniary results upon the inhabitants. I will mention, as one illustration of the sort of inquiries to be made, a statement I happen to have heard on this subject. I was told that the opening up of magnificent new streets, and the widening of old ones had been greatly, but not unjustly, cheapened by the compulsory purchase (at a fair price) not only of the ground actually required for the street, but also of that to some depth behind; so as to allow of the increased value being obtained by the sale or lease (at frontage price) of the new frontage so created—thus bringing down to the value per foot of the mere back street or mews behind, the actual cost of the ground added in front to the well frequented and therefore valuable street's width. The diffusion of information with regard to such Metropolitan works there, and the formation of public opinion upon them, is, I believe, much promoted by the periodical issue of the *Revue Municipale et Gazette Reunies*, which seems a very instructive publication. The Committee have not yet proceeded far in their interesting investigation, but I can confidently state, as the result of my own studies and enquiries, that the system of exceptional Government for the metropolis, as distinguished from the other cities, of France, which was framed and carried early in Louis Philippe's Government, is deserving of attention; and that the careful mode in which it it is there sought to temper, by a division of Municipal authority, and the introduction of ministerial checks, the naturally undue influence of a wholly self-governing Capital upon the State, would afford some useful hints for thoughtful adaptation, not for servile imitation, to any statesman undertaking the arrangement of a constitution for our metropolis. To frame for London, with its two and half millions of inhabitants, now increasing at the average rate of 50,000 souls a year, Representative Municipal Institutions, so as to render them effective for Local Administration, without giving them a formidable influence over the Imperial Government, is no easy problem.

The Committee upon Industrial Pathology held several meetings last year, but has not yet completed its investigations. I trust they will be vigorously pursued, for the exact knowledge of the extent of disease really due to noxious processes, even if they turned out to be, what they very rarely would be found, really inseparable, would be a great gain. The subject is one deserving every attention on the ground of humanity no less than of science, and it opens a wide field for patient research. Nothing should be taken for granted in it—every statement should be rigorously tested, for the illustrious Parent Duchatelet has demonstrated the utter baselessness of many of the general impressions with regard to the sanitary effects of particular employments. And this leads me to the reflection that the health of the labouring classes is perhaps in general less influenced by the work they are employed on than by the habitations they dwell in and the food and drink they are supplied with. Indeed, the answers to any sanitary inquiries confined to their trades only, without reference to lodging or diet, would obviously very imperfectly resolve the question under consideration. The sanitary condition of our different towns, and the different parts of those towns inhabited by different classes, has now been for some time so energetically investigated by official and philanthropic inquirers that it would be a waste of this Society's energies to enter upon that field. But the question as to the dietary of the masses, and the extent to which their nominal dietary is deteriorated by systematic adulteration, has as yet been very imperfectly looked into, and deserves on every ground more careful research. The *Lancet* has done good service by its able and systematic exposure of some of the more common adulterations, but we still know much less on the subject than we ought.

The line of argument taken upon it by many, including, I regret to say, some statesmen of eminence, has been *caveat emptor*—we must look to competition and public opinion for protection against the tricks of trade. To me, I confess, the political economy seems as questionable as the morality of this view. I can conceive no more reason why knowingly uttering false money should be punished, than knowingly selling verdigrised pickles—money being also equally a commodity, an object of purchase and sale, and its falsification being at least free from any danger of injury to life. The universal practice of civilised nations has established the precious metals as the general standards and measures of value. But the only reason why they are coined, that is, cut out into pieces of certain weight and fineness, each impressed with the Sovereign's image, so that it cannot well be altered without detection, is really to save every individual separately the difficulty and labour of testing the weight and fineness of the silver and gold he is paid in. Every civilised nation has also adopted some legal standard of weights and of measures. *Caveat emptor*, in principle, would apply to the one case as to the other; but the intolerable inconvenience and absurdity of its application to money and to weights and measures, has caused a special exemption from this principle to be universally agreed upon in their favour.

The sanitary Congress at Brussels, comprising representatives from almost every civilised nation, except, if I mistake not, Russia, unanimously affirmed, as a general principle, the detection and punishment of adulterations to be a public duty. The extent to which any government could prosecute with advantage such an inquisition would, of course, depend upon circumstances; but I believe the principle to be recognised by the common law of almost every civilised country, not only as regards money, but also as regards meat in a state unfit for food. In many countries it is notoriously carried much further. Of the soundness of the principle on moral and social as well as economical and sanitary grounds, I entertain no doubt. Indeed, I have heard strong statements made on the authority of City Missionaries and others, of the deteriorating influence exercised upon the servants of tradesmen addicted to such practices by the atmosphere of fraud and falsehood, in which they live.

But before quitting altogether the subject of the condition of the classes engaged in working for wages in different branches of industry, I cannot help expressing an opinion that we might before long, well find room for another Exhibition, of which the foundations may, without flattery, be said, like those of the two others already mentioned, to have been virtually laid by our Royal President, in the model cottages he so munificently built in connection with the Great Exhibition, and in the collections shown there by the Society for Improving the Condition of the Labouring Classes, which enjoys the honour of his patronage. I mean what I fear we must call a Working Man's Exhibition, for want of a more appropriate title to imply the simplicity and economy we contemplate—(a simplicity and economy which, however, all classes, to a certain extent, seek in vain at present in the arrangements of their homes)—an Exhibition for the display and comparison of the various kinds of dwellings, internal arrangements and fittings; furniture, beds, and bedding; fuel, grates, and stoves; cooking apparatus, kinds of food, and beverages, and the modes of preparing and using them; materials, and form of clothing, &c.; arrangements for cleansing persons, bedding, clothes, &c., which in different countries, and in different parts of the same country; in different climates, and in the same climate; to answer different purposes and the same purposes; under circumstances essentially different, and circumstances essentially similar, are generally used and approved, and more especially by the classes commonly known in England as the labouring classes.

It is notorious that though obviously not rich, no classes are so wasteful in proportion to their means, none turn fuel or food to so little account. From the want, partly, of the knowledge of "common things," partly of that interchange of views and experience, obtained less by books than by seeing other places and people; and also owing to the low prices they can only afford to pay for what they buy; improvement and economy (as distinguished from self-denial) are slower in finding their way into the poor man's household than into any other. I, myself, think that much good might result from such an exhibition if conducted with judgment and in a right spirit, remote alike from Utopian benevolent twaddle and an indolent acquiescence in "leaving ill alone." Whatever novelty is there exhibited and recommended must be cheap, simple, and strong, serviceable and appropriate. The Exhibition must not be held in a mere dilettante or nostrum-prescribing spirit, as a mere repository for ingenious trifles or complicated and expensive apparatus. Still less must it be held in a patronising or humanitarian spirit. Sad as it is to reflect upon the sufferings and privations endured by so many of our fellow-creatures, the best of them infinitely prefer—and I, for one, heartily sympathise with them in so doing—the cup of self-denial to comforts purchased at the expense of self-respect and independence. This country, having taken the lead, as it long has, in Charitable Institutions, and still does in the far better class of self-supporting Institutions for the masses, and having preceded all Europe in sanitary reforms, for securing to the poor man his chief capital, health, England seems to me to present peculiar advantages for usefully holding such an Exhibition. And I know not by what more appropriate body it could be started than by our Society, comprising as we do among our actual or affiliated members, working men of all classes, from the Prince next below the Throne and the minister in the Cabinet, to the manufacturing operative and the agricultural labourer.

I have learned with great pleasure that the Imperial Government of France is seriously and practically entertaining the notion (first, indeed, suggested by a Member of our Council) of constituting such an exhibition as I have described into a separate department of the *Exposition Universelle* of 1855. Though, from the shortness of the notice, it is not now to be expected that it could be presented there in a very complete state, yet immense advantages would be gained by the general diffusion through the whole civilised world which would be given to the idea if it were thus identified as a distinct, though subordinate feature of that great cosmopolitan undertaking. The way will, I hope, be thus paved for successfully holding hereafter a special Exhibition *ad hoc* in this country. If the Imperial Government should realise these expectations, I need not say that the Society will be most anxious to promote the success of this as of every other feature of that noble work of our neighbours.

Meanwhile, however, we hope that for the benefit of all classes, exertions will be made to improve the arts conducing to an amelioration in the quality and arrangements of our buildings; as by non-absorbent bricks and tiles, and their cheaper production by less expensive and more manageable kilns and drying-sheds, economising time, labour, and fuel; by well-considered plans of ventilation, water supply, and drainage, to be employed in the original construction of houses; by cheaper fire-proof floors, &c.

The Council will continue its efforts to promote the decimalization of coins, weights, and measures, and to urge upon the Legislature some Amendment of the Law of Partnership. I individually look forward to the operation of this last measure as being likely—1st, to call into existence a number of small but valuable local undertakings, not large enough to attract the attention of the wealthy but distant capitalist; secondly, to hold out to the lowest class, the most extravagant of all classes in proportion to its means, more attractive invitations to saving than Savings Banks and Friendly Societies can present; and, thirdly, to diminish the distance and increase the sympathy between the employer and the employed, by converting many workmen into employers in their other capacity of shareholders in industrial undertakings.

The Society took an active part in promoting Postal Improvement; it will continue to do so, and to endeavour to get the great benefit of postal facilities extended to foreign countries and our own possessions beyond the sea. I sorrow in saying that the Honorary Secretary of the Committee, Don Manuel de Ysasi, who was the chief contributor with his purse as with his labour, was among the passengers in the unfortunate *Arctic*, and drowned.

The Council proposes having a Committee upon Parcel Postage. The Government having already, to a certain extent, taken this business into their hands, it will be interesting to ascertain the practical effect of what they have done in this respect; whether the results would seem to indicate that we ought to leave the matter as it is, or whether a retreat from our present position would be advisable, or a further advance in the same direction, as, for instance, in cases where there is and can be no regular commercial conveyance.

And now, having said thus much as to our future proceedings, I will return to the transactions of last year. We held our usual Exhibition of patented and other novel articles, among which I may perhaps mention as interesting to myself, who have before now been obliged to wear a respirator for warming the air on its way to the lungs, an ingenious application of the same principle by Dr. Stenhouse. For the air-warming wires of the old respirator he has substituted a filter of charcoal, to purify foul air on its way either in or out of the mouth. We had besides an instructive supply of fibres exhibited as substitutes either for rags in the manufacture of paper, of which the scarcity has been caused by the increased demand consequent upon extended education and postal facilites, or else for flax and hemp, of which, as the supply used to come in great part from Russia, the scarcity is mainly attributable to our present war with that power. But the most generally useful of all the novelties exhibited here last session, is the capital smoke-consuming open grate, which has been, like all his other valuable inventions, most generously presented to the public as a free gift by my excellent friend Dr. Arnott. You will be, I am sure, rejoiced to hear that the Council of the Royal Society have this year awarded him the Rumford medal for it. Many of you, I dare say, with me, heard his luminous exposition in this Hall of the admirably simple action of his admirably simple contrivance, and saw the specimen grate burning most satisfactorily in the fire-place opposite. Taking the saving of fuel as equal to only 25 per cent., the pecuniary saving from its use would more than compensate for the rise in the price of coals. While the consumption of the generally unconsumed fuel called smoke in the 400,000 private houses about the metropolis would make a difference in the clearness of the atmosphere, and the cleanliness of everything, far greater than anything we have yet seen to result from the Smoke Act, now at last in legal operation. I only hope that the ironmongers will aid in this movement, for without their co-operation little will be done for some time. I trust that, boldly relying on the demand sure to spring up upon such a fuel-economising open fire being offered to the public at a moderate rate, they will forthwith manufacture the Arnott grates in such large numbers as can alone enable them to be sold at a low price.

So much for the inventions of last session. I have now the pleasure of announcing to you that papers have not only been promised but are actually advertised on the following interesting subjects, by the following well-known able writers: "On the useful products of coal, coal gas excepted," by Professor Crace Calvert, on which I would remark that more of these useful products would be placed within our reach if we, with Dr. Arnott's aid, consumed less coal in making that worse than useless product smoke.

Another "On unused and unappreciated articles of raw produce from different parts of the world," by Mr. P. L. Simmonds, treats of a subject specially interesting to England, under whose dominion Providence has placed so large a proportion of the habitable earth. When we remember that not long ago gutta percha and Indian rubber (except as a leadeater) were among those unused articles, we may judge how important may be the products still lying unappropriated within our reach.

The next, "On British Agriculture," by our ever active and sanguine friend, Mr. Mechi, speaks for itself. He is always to be found in the van of improvement, though sometimes the regulars would say hurrying forward with more eagerness than prudence. But those who remember Tiptree Heath as it was, must acknowledge that Tiptree farm, with its buildings, steam-engine, machinery, tanks, and pipes, is "a great fact." He has, I think, conclusively established, (for he is beginning to have many imitators,) the profitableness, even on an isolated farm, of cultivation by the application of liquid manure. It is the system to which, in the case, at least, of all moderate sized inland towns, I look for the only satisfactory solution of the great problem,—How to make food of what now too often makes fever. How remuneratively to return to the land in the shape of manure the elements of fertility taken from it in the shape of corn and meat, which, after they have been eaten, are now almost universally wasted.

The next, by Mr. Scrivenor, "On the growth and expansion of our foreign and colonial trade in iron, and the fiscal obstacles to its extension," interesting as it would have been even a century ago, to a country with such stores of iron and coal as we have been blessed with, assumes a double importance in these days of iron houses, iron ships, iron roads, &c.

The next, "on the New Bank-note," by Mr. Smee, a confidential servant of the Bank of England, comes most appropriately before a Society which is sometimes complained of as too greedy of new things. Whether we consider the new surface-printed bank-note we are to have, as a beautiful application of a beautiful recent invention, or as a happy means of putting away from our people the temptation, and delivering them from the evils of forgery, it must be equally hailed with satisfaction—and I have no doubt every one present joins with me heartily in the wish that we may each and all of us have plenty of them when they come out.

We have already good grounds for expecting other papers to be read, on the following other interesting subjects :—" On Silk Manufacture ;" "Water Supply and Dr. Clark's Softening Process;" "American Iron Manufacture;" "Railway Accidents, being a review of Means for their Prevention ;" "Electro-Magnetism as a Motive Power ;" "Mining Records;" "Submarine Telegraphs and Telegraphic Instruments;" "Smoke Nuisance;" by gentlemen whose names even to give them would be a guarantee for their ability and value. I only hope the discussions upon each and all of them will be as well sustained as I doubt not the papers will be well done. I trust, therefore, we may look forward to an active and useful Session. And now, though I have already, I fear, detained you too too long, I would ask yet one moment's attention more to speak of our future prospects.

If we look at the history of the Society, and consider both its antiquity and the comprehensiveness of its scope, we shall not wonder that many subjects once only to be dealt with, if of all, in this place, should each in the course of time have formed the special object of a body specially established to deal with it alone. Institutions such as those of the Architects and of the Civil Engineers, the Royal Agricultural Society, &c., are examples of what I mean ; and the Royal Society, occupying a position somewhat analogous to ours, has had similar off-shoots springing out of it from time to time. Nor is this cause for regret, but the contrary ; for the principle of the division of labour must tell. It is not to be doubted that each of these special bodies has worked more effectively within its limited sphere of action, than our more comprehensive Society could have done. At the same time, though there always must remain a great deal falling under none of the eliminated categories, uncovered by any specialty, to borrow a word from the Tariff, the list of unenumerated articles not coming under any of the other heads will be constantly diminishing.

But no Society can prosper long in the position, so to speak, of a mere residuary legatee. If we trust to that, we shall fall again, as our Records show we were fast falling, when, thanks to the infusion of a new spirit into our Councils, our rapid and sudden revival took place. And to what was that revival owing? How was it effected? Not by coming down to compete with the necessarily greater activity of specialties within their own limits, much less by confining ourselves merely to the constantly decreasing field of unappropriated work, but by taking up the master position of connecting the specialties, and giving prominence to their essential unity—by rising to the higher principles common to all arts and sciences.

I have alluded to the advantage of division of labour. Its drawback is the tendency of the process to hide out the final object, to cause the ultimate end and the mutual relations of the several processes to be lost sight of by those engaged in each respectively. We see, therefore, how necessary it is in everything, in government, in science, in art, in manufacture, in commerce, that both consolidation and sub-division should be constantly going on—each alternately predominating for the moment according as general unity or special efficiency of action may happen to be most required—each, when well-managed, being not only not incompatible, but indispensable to the most advantageous use of the other.

We have just seen a Minister of War appointed, not for the purpose of confounding together, but combining into unity of action the once isolated and still distinct departments, managing respectively the commissariat and ordnance, the payment, the internal arrangements, and the disposition of our forces. On the same principle I venture to hope the Society of Arts may find a course of action at once useful and creditable, neither competing with any one of the many separate organisations for specialities, nor yet superseded by the aggregate of those bodies; but forming, unlike the Secretary of War, an unauthoritative and unobtrusive bond of union and co-operation between them. The proceedings of the Society of Arts with regard to the Great Exhibition of 1851, and the lectures upon its influences and results; the inquiries into the state of industrial education; the formation of a confederation of kindred Institutions throughout the kingdom; the steps taken for the promotion of education in connection with them, and the scheme for testing the education given and encouraging the students in them; and lastly, the Educational Exhibition, which so appropriately signalised the chairmanship of a zealous servant in the educational department of the state, show that for the last few years we have been doing work which no one of those other Bodies, nor all of them together, could have as advantageously undertaken.

While the Society occupies this position, and does work of this sort, I have no fear either for its usefulness or credit; and I venture sanguinely to anticipate for it, in the somewhat altered character it has gradually, from the nature of things, assumed, a second centenary still more serviceable, still more influential, and still more brilliant than its first.

The Secretary announced that at the meeting of Wednesday, the 22nd instant, the following Paper would be read:—"On the Manufacture and Application of Various Products obtained from Coal (Coal-Gas excepted)," by Professor Crace Calvert.

REPORT ON THE MUNICH INDUSTRIAL EXHIBITION OF 1854.

CONSUL-GENERAL WARD TO THE EARL OF CLARENDON.—(*Received October* 16.)

Leipzig, October 8, 1854.

MY LORD,—I have the honour to report to your Lordship, that having proceeded to Munich, according to your Lordship's instructions, as the Commissioner appointed by Her Majesty's Government, upon the invitation of the Government of Bavaria, to attend and inspect the Exhibition of German Industry held in that city, I have to lay before your Lordship the following observations upon that undertaking:

1. The States of the German Customs Union came to a resolution in the year 1842, to hold periodical exhibitions of the produce and manufactures of the States composing the Union; and the first of these Industrial Exhibitions (which I visited at the time) took place accordingly at Berlin in the summer of the year 1844. The interval proposed was five years, and the Munich Exhibition was therefore contemplated for 1849; but the political disturbances of that and the previous year obliged the Governments of the Customs Union to postpone their second Exhibition for ten years from the date of the first. At the Toll-Conference of 1853, Bavaria having declared her readiness to proceed with the Exhibition in 1854, the proposal was approved by the other States, with the additional resolution that Austria (whose commercial relations with the Customs Union had been drawn closer by the Treaty of the 19th February, 1853), as well as the small States in the North which are not members of the Union, should be invited to contribute to the undertaking. This proposal was accepted by Austria, as well as by the Principality of Lichtenstein, the four Hanseatic towns, and the Grand Duchy of Mecklenburg-Strelitz; but Mecklenburg-Schwerin and Holstein do not appear to have exhibited anything. Of the thirty-three contributing States, twenty-six were members of the Customs Union (including the five kingdoms of Prussia, Bavaria, Saxony, Wurtemberg, and Hanover), and the remaining seven were non-members of it, as already mentioned. The only foreign countries which contributed were the non-German dominions of Austria, it being contrary to the principles of the German Customs Union to invite contributions from foreign countries generally.

2. The Government of Bavaria, being thus authorised by the Customs Union, issued its notifications and regulations on the 3rd October, 1853; according to which, the time for holding the Exhibition in Munich was fixed for the three months between the 15th of July and the 15th of October, 1854. A Royal Commission was appointed for the chief management of the undertaking, subordinate to which were various Executive Committees. For awarding the prizes, juries were nominated, each group of articles having its separate jury, upon the same plan as that followed at the Great Exhibition in London. The Exhibition was opened in state by His Majesty the King of Bavaria, on the 15th of July last.

3. The building appeared appropriate to its purpose, and was generally admired. It was in the form of a cross, and was constructed of iron, glass, and wood, from the design of the architect, M. de Voit, of Munich, by the contracting builder, M. Cramer-Kless, of Nuremberg. The site chosen was the northern side of the Botanical Garden. The length of the main edifice was 800 Bavarian feet,* and that of the main transept 280 feet. The greatest height was 87 feet. The following is, as I was assured, a correct statement of the space which the building afforded:—

		Sq. Ft.
Superficies of the Glass Hall (main building)		216,800
Superficies of the adjoining Engine-room		23,210
Superficies of the adjoining room for Agricultural Implements		17,204
		257,214
Deduct for Offices and Staircases .		12,400
Space for the Exhibition		244,814
	Sq. Ft.	
Of which the Floor took . . .	64,556	
the Tables	60,672	
the Passages	119,586	
		244,814
The Walls or Sides took		48,927

The average space allotted to each exhibitioner (taking the number of exhibitioners at 6,800) was calculated at about 18 square feet of flooring and tables, and 7 square feet vertically, making in the whole somewhat more than 25 square feet. A drawing and plan of the Glass-hall are annexed. The general effect upon the observer from within was undoubtedly good; but the pillars being of wood, not iron, was a circumstance which rather detracted from its general elegance and lightness. The entire of the cost of the building is stated to have been 880,000 florins, or about 88,000*l.* sterling.†

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* 100 Bavarian feet are equal to 95¾ feet English measure.

4. The articles exhibited were distributed into twelve groups in the following manner:

The first group comprised minerals and combustibles; viz., ores; metals in their first stage of preparation; cements; minerals for plastic works, or for manure; coals; turf, &c.; also models of mines, and geognostic maps.

The second group comprised agricultural produce, either raw or in the first stage of preparation; such as corn, pulse, hemp, flax, tobacco, saffron, raw hides, silk cocoons, honey, and cheese.

The third group comprised chemical and pharmaceutical productions; and dye-stuffs of every description.

The fourth group comprised articles of food and personal use; such as flour, sugar, tobacco, soap and candles.

The fifth group comprised machinery; viz., steam-boilers, locomotive-engines, railway and other carriages, spinning, weaving, and printing machinery, artillery, household and agricultural implements.

The sixth group comprised all sorts of instruments for weighing and measuring; clocks; astronomical, surgical, and musical instruments.

The seventh group comprised textile manufactures and worked articles, whether of cotton, woollen, linen, or silk; yarns, hosiery, waxed-cloth, carpets, lace, furriery, gutta-percha wares, straw wares, leather, and articles of clothing.

The eighth group comprised metallic wares of all sorts, jewellery, and arms.

The ninth group comprised marble-works, earthenware, procelain, and glass.

The tenth group comprised wood-wares and hard-wares of all sorts; ivory, horn-work, papier-maché, and toys.

The eleventh group comprised paper, writing and printing-materials, prints, maps and globes.

The twelth group comprised a selection of works of art suitable to the objects of the Exhibition.

A list of the articles exhibited will be found specified in the Official Catalogue, a copy of which I have the honour to annex. When the Catalogue was first arranged, the number of the exhibitors was 6,588; but, by various supplementary additions, it increased, as will be seen, to 6,977; and some few contributions were still expected, which would raise the number of exhibitors to full 7,000. By far the largest of the groups was the seventh (textile manufactures), which comprised the productions of about 2,200 exhibitors; the next to it was the eighth group (manufactures of metal), comprising about 1,100 exhibitors; than came the ninth group (procelain, glass, &c.), with nearly 800 exhibitors; the other groups ranged variously from the number of 150 to that of 500 exhibitors.

5. The first question that here occurs is whether, considering the description of articles exposed to public inspection, and the countries from whence they respectively came, the Exhibition presented a fair view of the condition of German industry? This question must, I think, be answered in the negative. The produce and manufactures of Prussia, and the Nothern States, were very inadequately represented; while Bavaria occupied above one-third of the whole Exhibition, and encumbered it with a vast number of small articles which do not enter into the consumption of the masses in the great markets. The contributions of Austria were considerable; but though the industry of Vienna, of Moravia, and of Bohemia, stood promiently forward, one looked in vain for adequate specimens of the rich raw materials of Gallicia, Hungary, and Transylvania; and the representation of the Lombardo-Venetian territory was merely nominal. The disproportionate efforts of the respective German States, will be seen by the subjoined analysis of the countries to which the 6,977 exhibitors belong.

Of this number the Bavarian Industry alone furnished	2,496
That of Austria	1,533
That of Prussia, only	823
That of the Kingdom of Saxony	496
That of Wurtemberg	451
That of Baden	183
That of Hanover	165
That of the remaining States	830
Total	6,977

So that Bavaria may be said to have supplied five-fourteenths, and Bavaria and Austria together four-sevenths of the entire Exhibition, while Prussia contributed less than one-eighth part of it. The contributions of Wurtemberg were also much beyond the scale of the real manufacturing power of that state. The disproportion becomes still more striking when we call to mind the fact, that the population of the Prussian monarchy is about 16,500,000, that of Bavaria 4,500,000, and that of Wurtemberg 1,800,000; so that the Prussian exhibitors were in the ratio of 1 to every 20,000 of the population, whereas the Bavarian were in the ratio of 1 to every 1,800, and those of Wurtemburg in the ratio of 1 to every 4,000, of the population of those states respectively.

6. The Exhibition was, in fact, rather a display of the industrial powers of Southern Germany than of those of the entire country. Austria was glad to seize the opportunity of taking part, for the first time, in an Exhibition of the Industry of the German Customs Union. She made great exertions to be well represented, and was not altogether unsuccessful. The Austrian Government, which ardently desires the incorporation of the whole of Germany into a general Customs Union, was desrious of showing, that the Austrian manufactures were making steady progress and were in some respects already qualified to compete with the Industry of the North and West. This first appearance of Austria within the sphere of the Customs Union* was a step well calculated to increase the practical effect of the Commercial Treaty of 1853, and to dispose the minds of the German public to look to an extension of the principles of that arrangement, in the formation of a complete Customs and Commercial Union between Austria and the Zollverein; an end to which the Governments of Bavaria and Wurtemberg have for some time past, in common with Austria, directed their policy, and which the manufacturers of Southern Germany seem to consider sure of accomplishment at no distant date.

7. The classification of the articles exhibited appeared proper and judicious, and was, with some few exceptions, strictly adhered to within the Glass Hall. In the space allotted for each group respectively, were placed all the articles belonging to that group, from whatever state they came; but the Catalogue was arranged upon a different principle, namely, according to the order of the contributing States and their subdivisions, which proved very inconvenient to the visitors of the Exhibition. The Catalogue recited, not only under the head of each state, but, under the head of each province or district of some of the states, the twelve groups, classifiying the article in each group, contributed by each state or district. Now Prussia was parcelled out, for the purpose of the Exhibition, into twenty-two districts; Austria into sixteen; Bavaria into eight, and Baden into four districts. The consequence was, that the catalogue comprised no less than seventy-eight territorial divisions, under each of which the twelve groups were repeated, or so much of them as was applicable; and when a visitor desired to see any given article specified in the catalogue, it was often no easy matter to discover its actual position in the Glass Hall. It could not interest the public to know whether certain articles were

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† 1 florin of 60 kreuzers is equal to about 2s. sterling.

* Austria sent some articles to a small Exhibition at Leipzig, in the year 1850, but that was not an Exhibition of the German Customs Union.

collected under the supervision of the authorities of the Upper or Lower Enns, or the Government department of Köningsberg, or that of Gumbennen. The best arrangement on these occasions is, I submit, that the catalogue should simply enumerate the articles in the order in which they stand in the respective groups, so that the catalogue may be really a guide to the visitors of the Exhibition; and this principle may, perhaps, be usefully borne in mind in reference to the English portion of the approaching French Exhibition. No attempt should be made to classify the objects by counties or other districts; and the catalogue should correspond, in its order and arrangement, with the Exposition itself. A descriptive or explanatory catalogue is, of course, always desirable when it can be accomplished. The managers of the Munich Exhibition attempted nothing of this kind; but the Wurtemberg Committee published a separate catalogue of their own, which is more descriptive than the general catalogue, and states the prices of various articles, which the German manufacturers have for the most part on this occasion been reluctant to communicate to the public.

8. The great value of this Exhibition to Germany consists, as already mentioned, in the first appearance of the Austrian manufactures within the field of the Zollverein; but as regards the interests of foreign countries, such as England, the material question is, whether the Exhibition affords evidence of any considerable progress in the industrial career of the German manufacturers? My own impression is—and it agrees with the opinions of many experienced commercial men with whom I have conversed on the subject—that the more important branches of manufacture have made little progress in Germany within the last ten years, and that there has been no visible advance in them since the date of the Great Exhibition in London of 1851. The British manufacturer could, therefore, derive but small instruction from the Munich Exposition; and, as I have already observed, its character was so much that of an affair of the Southern States, that in some respects a better picture of German industry is in fact to be found in one of the Leipzig, or other great German fairs. This remark applies especially to the textile manufactures. In machinery, and the working of metallic substances, there are more signs of improvement; and there is a class of objects in which the excellence of the German artisan is very apparent, and where the advance is sufficiently striking—I mean articles of an artisticc character, whether belonging to the department of the fine arts, or of a mixed nature, combining beauty of form with subservience to practical utility. In such works, the Teutonic genius is certainly not stationary, and already holds forth many models well worthy of our notice and imitation.

9. According to the published regulations, a full report upon the results of the Exhibition, and the merits of the articles exhibited, is to be made, after its close, to the Bavarian Government by a commission specially appointed for the purpose. A long and elaborate document is, I understand, to be expected, which will be valuable to those who desire a more special and technical insight into the subject than it is in the power of a merely cursory observer to furnish. In the meantime I venture to submit the subjoined remarks, which are of a more general character, and arranged in the order of the twelve groups of articles respectively.

10. *The first group* contained a large collection of minerals, and some coals, the produce of the Bavarian mountains, amongst which the auriferous sand from the rivers Isar, Inn, and Danube, was a surprise to many. The Hanoverian Mining Administration at Clausthal in the Harz sent a valuable assemblage of the Harz minerals, either in their primary state or in the first stage of preparation. Among the latter, the figure of a boy in raw cast iron was deservedly admired. The contribution of ores and minerals from the royal mines at Frieberg in Saxony was both extensive and well arranged, and appeared upon the whole the most important of its kind in the Exhibition. TheAustrian mining districts were well represented. The Styrian steel, and the copper from the Salzburg mines, were conspicuous. The Prussian zinc, and the manufactures of it, were very superior. Wurtemberg sent some good articles, both useful and ornamental, of cast iron and zinc. An asssortment of wires, made by Beck and Co., of Augsburg, deserves a mention; their brass sieve wire was some of the finest ever yet produced, being of the fineness of 100,000, and even 120,000 feet to the pound, which is said to have been not yet realised in England. The Carinthian iron was exhibited in bars and axles of extraordinary strength. The copper of Nassau made a respectable figure. It must undoubtedly be admitted that many good specimens of the iron manufacture were presented by Austria, Prussia, Bavaria, Saxony, and Wurtemberg, this last particularly in ornamental objects of cast iron. The tendency of the German iron manufacturers is more than formerly towards production on a large scale; consequently they work less with charcoal, and require more coal. In Westphalia a great development of the production of the iron furnaces may be expected in consequence of the appearance of iron-stone (black-band) and coal in conjunction, as is so often the case in England. This fortunate conjunction is said also to take place not unfrequently in the Austrian dominions, and the art of preparing the cokes is now better understood than it used to be by the Austrian miners. The Munich Exhibition certainly contained much more numerous and various specimens of metallurgy than that of Berlin in 1844 (though some great mining districts, such as Prussian Silesia, were not represented); and of the iron manufacture, if not of the other branches of metallic industry, sanguine hopes are entertained that they are beginning to show signs of future development. The German iron manufacturers must, however, produce cheaper than at present before they can compete successfully with English or Belgian iron, and in order to effect this they must establish many more blast furnaces for production of raw iron in the country itself. Saxony has considerable advantages for working raw iron, owing to the abundance and cheapness of its coal, of which an enormous square block, weighing 23 centners,[*] was displayed in the engine-room of the Exhibition.

The great importance to Germany of the extension of its iron manufacture is evident enough; but it is also evident that, in so far as the Governments have endeavoured to attain that object by protecting duties, they have taken a wrong course. In the first years of the existence of the German Customs Union, raw iron was admitted duty free, and bar iron at one dollar per centner. On the 1st of September, 1844, raw iron was charged with a duty of 10 groschen per centner, and bar iron, according to the thickness, with 1½ and 2 dollars per centner.[†] Now the production of iron within the Customs Union appears to have been on the average of the under-mentioned years[‡]—

	Centners[§].	Ratio per head of the Population.
1834 1835	2,566,661	10·50
1842 1844	3,438,851	13·29
1845 1847	4,085,567	15·26
1848 1849	4,177,257	15·42

So that the imposition of the protecting duties seems to have decidedly checked the rate of increase of the home production. The effect upon the consumption

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The trade centner, 110 lbs., is equal to 113¼ lbs. avoirdupois.

[†] The dollar of 30 groschen is equal to 3s. sterling.

[‡] See Huber's reliable, and in part official, "Statistical Year Book" for 1852.

[§] The toll centner of 100lbs. is equal to 110¼ lbs. avoirdupois.

was still more striking. The consumption of iron for general purposes, (exclusive of railways) within the Customs Union was on the average of the years—

	Centners.	Ratio per head of the Population.
1834 1835	2,492,736	11·60
1842 1844	5,788,729	21·46
1845 1847	4,801,027	16·37
1848 1850	4,568,995	14·55

Showing a progressive decrease in the consumption of iron in general since the introduction of the protective duties. Still the protectionist party in Wurtemburg, Nassau, and other parts of Southern Germany, continue to insist upon taxing foreign iron, and the free-traders have not yet succeeded in procuring the repeal of these objectionable duties. Foreign iron is indispensable to the German consumer, and must continue to be so until more capital and energy are applied to the raising of the raw material within the country itself. Without this no improvements in the fashioning of cast iron or in the finer manufactures will be of much avail in a national point of view.

Possibly the energies of the Zollvercin may be in this respect stimulated by Austria, which is rich in excellent iron mines, and is paying much attention to the improvement of machinery, as the Austrian portion of the Exhibition has proved. The production of iron seems to have increased more rapidly in Austria than in the other States. The quantity of raw iron produced in Austria was—

1833	1847	1850
Centners. 1,603,755	Centners. 3,109,202	Centners. 3,217,064

The quantity of cast iron produced in Austria was—

1833	1847	1850
Centners. 173,207	Centners. 485,575	Centners. 443,871

The consumption of iron in the Austrian dominions is, however, comparatively, yet very small. In the year 1848 it amounted to only eleven pounds per head of the population, of which two pounds and a half were for railways, and eight pounds and a half for other purposes; whereas, in the year 1850, the use of iron per head is stated to have been in the Zollverein 21·79 pounds, and in England no less than 94 pounds.

(*To be continued.*)

NOTES ON VENTILATION AND WARMING.

By Lady Bentham.

The furnishing of warm air to apartments seems to have been lost sight of latterly, though of first-rate importance. In whatever way foul air is extracted, its place must necessarily be supplied with other air, and if this be cold, disease is likely to ensue; but to obviate mischief of this nature the surrounding a common grate with an air-chamber was long ago invented, that chamber having one pipe connecting with the outer air, and another pipe opening into the apartment; but this arrangement has fallen into almost complete disuse. Its abandonment seems to have been caused by a radical defect in the construction of the inlet of air, namely, that no provision was made for varying the entrance of air according to the different points of the compass from which the wind may blow. By way of example of the mischievous consequences of this defect may be stated that in our house, facing the north, a Rumford grate was so fixed as to be surrounded by an air-chamber, fed by a pipe opening outside of the house, and on the south side of the chimney was another pipe, for the delivery of heated air to the apartment. When the wind set from quarters to the northward, the arrangement answered to admiration; but when it blew from southerly points of the compass, the action of the chamber and its pipes was reversed—hot air went *outward*, cold air to supply its place came in from every chink of door and window. Subsequent trials of the apparatus have proved equally defective from the same cause, yet it seems susceptible of being easily obviated, as I have seen it to be at Montpellier. In that town the noted chemist, M. Berard, caused fire-places to be arranged according to our own Cavendish's plan, but surrounded that chemist's stove with an air-chamber, the entrance tube to which opened into a spacious corridor, to which air had access from both ends. The same gentleman's son, Professor Berard, superintended the fixing of several fire-places in the same manner for friends, all the air-chambers receiving their supplies from corridors. Our houses in towns and cities have no such vast corridors as those at Montpellier, but it has occurred to me that the same effect might be produced in houses as here built, and that without considerable cost or inconvenience. According to the idea conceived, a general air chamber might be constructed for the supply of as many rooms as might be desired—the supply pipe from the general chamber to be carried outside of the house, and to terminate in a hood of the same kind as the cowl for chimnies, differing, however, from chimney cowls, as they are made to turn their openings *from* the wind, while those for the supply of air should, by means of vanes, turn their openings *to* the wind, from whatever quarter it might come.

It is evident that were a sufficiency of warm air introduced, both for ventilation and to supply the fire, cold blasts would no longer enter at chinks of doors and windows, and that the general temperature of an apartment might be the same, or nearly so, in every part of a room. It might, indeed, be still advisable to introduce Dr. Arnott's chimney-ventilators for summer use, though they would have less work to do than at present, thus removing in great measure an objection made to them, that of occasionally giving entrance to smoke and soot.

Many attempts have been made to do away with the annoyance of blasts of cold air. For this purpose Count Rumford, as is well known, greatly contracted the opening to a chimney shaft; but this was found objectionable, as dust was thrown into the room instead of being carried up the chimney. The Count's grates give the most cheerful of all fires, partly in consequence of the great surface they expose of radiant heat, they being semi-oval, with bars at every part excepting the back, and partly this advantage results from the shape of the bars;—they are triangular, instead of round, and of such angles as least obstruct radiation from the burning fuel. The coal receptacle advocated by Dr. Arnott might easily be connected with a Rumford grate. Unfortunately, the simplicity of such a grate has prevented its adoption, but where much ornament is desired, it might be introduced in our chimney jambs, which, if of polished steel, would act as reflectors of the fire.

Mr. Simon Goodrich, mechanist in the Inspector-General's office, being much annoyed by cold blasts of air, to feed the fire brought a supply of air from under the boarding of his room, opening a channel for it in front of the fire. In this way dry rot of the timbers was prevented.

The cheerfulness of open fires will long tell in their favour, but much remains to be devised for the perfect combustion of smoke from them. Amongst other means proposed is that of a rotatory grate, which should be reversed on every fresh application of coals. This plan has the great advantage of enabling the supply of fuel to be optional, but against this plan is the trouble of opening or closing the alternate top or bottom of the grate; there is also the difficulty of rendering durable the hinges or other contrivances that might be employed.

Old-fashioned *register* stoves have been little used of late years, yet the means they afforded of augmenting or diminishing the opening to the chimney shaft at pleasure is desirable.

The best manner of heating and ventilating large public buildings is still disputed, though many thousands of pounds sterling have been expended in apparatus for these purposes. The mode adopted in St. George's Hall, Liverpool, seems to have well answered as to effect; but it must have been costly at its first establishment, and probably a considerable quantity of fuel is consumed by it. The simplest mode with which I happen to be acquainted is that long ago devised by Mr. W. Strutt: it was for heating and ventilating the large cotton mills of himself and brothers at Belper. In this apparatus a very large chamber received air from the external atmosphere, and conveyed it when heated to the several chambers in the mills. Fire was lighted in a simple stove under the chamber, and from this fire the smoke and flame were conveyed around and over the air chamber, the channel for smoke and flame being extremely narrow, so narrow, indeed, as to render a scraper within it necessary. The pipes for furnishing air to the several work-rooms, might have been 8 or 10 inches diameter, if recollection can be depended on; their openings in each room were furnished with a self-acting means of closing more or less the aperture whenever the heat of the room exceeded about 60° Fahr., the temperature Mr. Strutt had found the most conducive to the health of his operatives. That gentlemen in 1806, kindly furnished drawings of his apparatus, as it was intended so to heat and ventilate the Panopticon School of Arts then erecting at Ochta, near St. Petersburgh. In this building the radial wings were each of them 100 feet long, yet when the external air was ever below zero of Fahrenheit, the whole of four storeys of workshops were heated from a single furnace, and the air being distributed in trunks along the whole length of each chamber, the temperature of the air rarely varied more than two or three degrees at the several parts of the 100 feet in length.

When, in 1848 the appalling fact occurred that no less than 73 human beings were lost from want of ventilation on board the *Liverpool*, I suggested the need of calling attention to the invention of air-pumps " cheap, easily fixed and worked, and not liable to be damaged by coarse usuages." This desideratum has been supplied by the invention of Dr. Arnott's curtain-valve pump, with which I was then unacquainted. It is employed, he says, for the ventilation of the Hospital for Consumptive Patients, and would be suitable for all buildings where crowded assemblies meet. This mode of ventilation would have, as I suggested,[*] in the year 1848, "the advantage of being distinct from, and independent of, any apparatus for heating, so that when the requisite quantity of foul air should be withdrawn, the supply of fresh air might either be heated in winter, or cooled in summer, as might be thought expedient. As to expense, the hire of a labourer to work the air-pump would hardly amount to the cost of fuel where ventilation is procured by means of fire, or to the interest of money expended in apparatus for obtaining a natural draught of air. A crowded church, for instance, might thus have its vitiated air withdrawn, and be supplied with pure air in lieu of it."

Pages 148 and 149 of the " Report on Quarantine " of the Board of Health, contain engravings of Dr. Arnott's curtain-pump of two different varieties. The barrel pump, of three feet square, and three feet stroke of the piston, he says, " delivers easily 1,000 cubic feet per minute." The swing pump, page 149, might possibly be the lightest of the two to work, and the most certain in its effect. Dr. Arnott suggests the placing one of these pumps half in a room and half in a loft above, so as to discharge foul air into it, or to connect pipes so as to carry the vitiated air entirely away. This suggestion led me to reflect on the application of the curtain-pump to domestic purposes, and that it was capable of being efficiently put in motion by clock-work; in consequence, I took the liberty of proposing to the Doctor its application to nurseries of children, hoping, at the same, that he would have enlarged on this general idea, but no notice has been taken of my note. I know, however, that a low-priced clock can be obtained of sufficient power to ventilate a sleeping-chamber by means of curtain valves, but whether or not for more extensive service, I am ignorant; yet I would fain hope that such an easy, certain, means of securing ventilated air might be extended to unhealthy work-rooms, as those of milliners and dressmakers. It is fearful to think of the number of young persons who are yearly sacrificed in such places for want of ventilation—their usual malady, the lingering one. consumption.

But supposing foul air to be withdrawn by the pump, and warm heated air to be supplied to replace it in winter, in summer there is danger, often, in sitting near an open window. To obviate this, no means yet devised seem so good as that first introduced, some seventy or eighty years ago, in St. Thomas's hospital, by Dr. George Fordyce. He caused parts of the windows to open inside, at an angle of a few degrees, closing the sides with triangular pieces of glass, the effect of which was to throw entering air against the ceiling. On the same principle, the upper edge of a sash-window might be provided with a ledge to cast the entering air against the ceiling, that ledge being moveable upwards or downwards, according as the windows might be open more or less.

The close stoves used in cold countries of course do not furnish adequate ventilation, but the apartments are usually spacious, and opening one into the other, the doors being left open. The loss of infant life is considerable in such circumstance, in consequence of the vitiation of the atmosphere. There is a well-contrived and pretty fireplace, called in France, a " cheminée Prussienne;" the like has been sought in vain in London warehouses, for it saves fuel considerably. It is simply an iron case, having its front partially enclosed; this front is more or less ornamented, often of marble, and on the top (but not touching the iron) is a slab of marble; it has a blower, elevated or let down at pleasure, by concealed rack-work, and the blower itself consists of several folds, so as to be out of sight when not in use. The Prussian stove is usually placed partly within a common chimney-opening, and it would be easy to close the open remaining part of the chimney, so as to form an air-chamber. I purchased a Prussian chimney at Montpellier, and had a Rumford grate screwed to its back; the consumption of coals was very small, though the heat given out was considerable, the chimney flue being closed in around the stove.

M. S. BENTHAM.

RATING OF INSTITUTIONS.

A case was tried in the Court of Queen's Bench on Thursday, November 8, before Lord Campbell, Justices Coleridge, Wightman, and Erle, between the Philosophical Society of Cambridge and the Churchwardens and Overseers of Cambridge.

In this case the Philosophical Society of Cambridge claimed to be exempted from the payment of poor-rates upon the ground that it came within the exemption of the 6th and 7th of Victoria, chap. 36. That statute enacted that no person should be rated to any county, borough, or parochial rate in respect of any lands or buildings belonging to any society instituted for purposes of science, literature, or the fine arts exclusively, provided that such society shall be supported wholly or in part by annual voluntary contributions, and shall not, and by its laws may not, make any dividend, gift, division, or bonus in money unto or between any of its members.

Mr. Watson, Q.C., appeared in support of the rate. The society was established in the year 1819, and in the year 1832 received a Royal charter. In the charter it was stated that Mr. Sedgwick and other gentlemen had applied for the same, and intended, by means of the society, to secure the promotion of philosophy and the science of natural history. Nothing was said in the charter about a news-room, which had now become one of the prominent features of the institution. The society had taken from St. John's college a lease of a house at a rental of £161 10s. On the first floor of the house there were two rooms lighted from above, in one of which the meetings of the society were held, and the other was used as a museum of natural history. Other rooms were occupied by the curator, whose duty it was to take care of the house and property, according to certain regulations. Many of these regulations had reference to the news-room and newspapers, and a large portion of the funds of the society appeared to be expended in the purchase of newspapers. Under these circumstances, the learned counsel contended the society was not exempt from the payment of rates. It was not "instituted for purposes of science, literature, or the fine arts exclusively," or, at all events, it had ceased to be so used. The case came within the principle laid down in the case of the Russell Institution, and others of a like kind, and the rate ought to be affirmed.

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[*] Mechanics' Magazine, 6th Jan., 1849.

Mr. Pashley, for the appellants, contended that the society was exempt. It had been originally instituted for the promotion of philosophy and science, and the mere addition of a news-room would not make it rateable. The periodicals purchased by the society, though not, strictly speaking, works on science or art, gave valuable information in respect to the progress of the arts and sciences, and were, therefore, necessarily included in the purchases of the society. They must, therefore, be considered as purchased with a view to promote the chartered objects of the society. The same argument would apply to the purchase of newspapers. The primary object of the society was the promotion of science, and the fact that one room was used for another purpose would not make the whole building rateable.

Mr. Justice Wightman asked what was the primary object of the society, which expended £304 in newspapers, and only £117 in scientific publications?

Lord Campbell said, he was of opinion that the society was rateable to the full extent of the rate. It was necessary to look at the manner in which the institution was conducted when the rate was made. At that time it was not a society instituted for purposes of science, literature, or the fine arts exclusively; but its principal object was the supply of political information for the members of the society. The principal item of the subscription was for the reading-room, and the principal part of the funds subscribed was expended in its support. It was most laudable that in a free country all citizens should desire to be acquainted with what was going on in the world, and newspapers often supplied most useful and edifying information; but could it be said that, when reading them was the main object of the institution, the members of it devoted themselves, when there, to "science, literature, or the fine arts exclusively?" The reading-room, which was, no doubt, crowded on the arrival of the post, was open at all hours; and everything showed that, at the time the rate was made, political information, and discussions thereon, formed the principal objects of the society. That being so, he (Lord Campbell) thought the society was not entitled to the exemption, even in respect of the museum, which formed part of the same premises, and was occupied in common with the reading-room. It would be most unjust that the members of this institution should throw any part of the expenses of procuring political information upon the rate-payers of the parish in which the reading-room was situated. As the case did not come within the exemption provided by the Act, he, (Lord Campbell) was of opinion that the rate was good, and ought to be affirmed.—The other judges expressed similar opinions.—Rate affirmed.

Home Correspondence.

Sir,—The important subject of the best mode of removing the sewage and other noxious refuse of towns, and its beneficial application to agricultural purposes, has recently occupied much public attention.

I place great value on the suggestion made by one of your correspondents, for making the exuviæ of every house the *perquisite of the servants*, on condition of their storing it in a suitable receptacle to be provided for that purpose.

It is a fact, that the system of ash-pits and privies in connection with each house now prevails almost universally in this country; and it is equally true that, in every case, such places are not only highly prejudicial to health, but the agricultural value of the excrementitious matter is, by the mixture of rubbish, cinders, &c., so reduced as not to be worth carting away.

The question to be solved is, what is the best and cheapest practicable mode of preventing the nuisance and loss occasioned by the present practice.

The plan of substituting waterclosets, and thereby carrying the offensive matter into the sewers, is open to the most serious objections, arising from the sewage having, in many cases, to pass through long lengths of drains, whereby it not only contaminates the atmosphere of our streets from the gully-holes and ventilating shafts, but poisons our rivers and brooks, rendering them little better than open cesspools.

I can fully bear out the assertion of another of your correspondents, "that all that has yet been done in manufacturing a concentrated manure from the liquid sewage of towns, has failed, or resulted in the spending of a *shilling* in labour and chemical materials, to produce an article worth *tenpence;*" and, as the experience of this company may possibly be found useful in some measure to Local Boards of Health or other parties following in the same direction, and as there is a wide field open for similar undertakings, I have been authorised to communicate to you the result of our operations.

We several years ago incurred considerable expense in testing the value of liquid sewage by the erection of suitable charcoal filters, and the precipitation by lime water and other means of the solid matters of the sewage; and succeeded in arresting all the feculent and organic matters, except that which was in a perfect state of solution.

The sewage operated upon was of the best description, and had been reported, according to chemical analysis, to contain an unusual amount of highly fertilising matters.

The result obtained, after long and expensive trials, was the perfect filtration of the water, so that, after it had passed the filter, it was clean and transparent, thus effectually obtaining one of the objects in view; but the other equally important point, viz., the securing of the agricultural value of the sewage matter, was very unsatisfactory, as the most valuable chemical salts, &c., passed off through the filter in a state of solution with the clean water.

Various chemical expedients were adopted to arrest them, but the expense of doing so, in consequence of the bulk of water to be treated, was found to be much greater than their agricultural value.

The sewage manure made by the process of simple filtration was only worth 25s. per ton, or little more than the value of the charcoal, and consequently during the years of 1850 to 1852, we sold at considerable loss all the manure so manufactured at that price.

We have carried out, to a limited extent, the plan of furnishing houses with water-tight boxes, partially filled with charcoal, to place in the present privies, and have removed the matter in a perfectly disinfected and inodorous state every few days. This system prevents any nuisance, and secures its full value for agricultural purposes. But it is evident that it can only be carried out profitably on a large scale, and we have been unable to persuade the owners of property generally to adopt it, although we have offered to provide any quantity of houses, not less than twenty in one locality, with disinfecting charcoal (if the owners provided the boxes), and to empty the receptacles every three days free of expense.

Having relinquished the attempt to manufacture a portable manure from liquid sewage, we have, since 1852, prepared manure by the dessication of fish, blood, flesh, bones, and other animal matters, and the evaporation of urine, night soil, ammonia, water, &c. These concentrated products, with other chemical materials, are mixed with charcoal, in fixed quantities, and form what is now known as the Manchester Sewage (or compost) Guano, which is sold in a dry inodorous powder, at £5 5s. per ton.

In China, France, and other countries, the value of all excrementitious matter is understood and appreciated, and it is hoped that the time is not far distant when the progress of sanitary reform in this country will make it imperative on the owners and occupiers of property to make such arrangements as will prevent the further long continuance of the present wasteful and unsanitary system of privies and cesspools.

I am, sir,
Your obedient servant,
JOHN THOMPSON,
Secretary to the Manchester Sewage Guano Company.
Manchester, Nov. 15th, 1854.

Proceedings of Institutions.

Bolton.—The twenty-ninth annual report of the Mechanics' Institution states that, compared with the previous year, there has been an increase of five honorary members, of twenty general members, and of one in the number admitted by transferable cards, or a total increase of twenty-six. The average total number is 329, or of each class respectively, 63, 222, and 44. The reading and news room is found to be one of the most attractive features of the Institution. The number of volumes added to the library during the year is 148—138 by purchase and ten by donation; the total number now in the library is 4,013. The number of issues averaged, in the four quarters, 3,578, being an increase of 880 volumes over the previous year, which also exceeded the preceding one by 500 volumes; thus indicating a continued progress, notwithstanding that a Free Public Library has recently been opened. The average number of members attending the several classes has been as follows: writing and arithmetic, 71; grammar, 11; mechanical drawing, 26; French, 24; essay and discussion, 54; making a total of 186 against 98 in the preceding year. Two public lectures were delivered gratuitously during the year, one by Sir John Bowring, on "China and the Chinese," the other on "The Ottoman Empire," by the Rev. A. F. Kemp. The favourable reception accorded to the cheap concerts given during the previous year, led the committee to arrange for a few similar entertainments during the winter season of the past year, but they were not equally successful—financially. The receipts during the year amounted to £200 7s. 4d., the expenditure to £206 10s. 4d., leaving a balance due to the treasurer of £6 3s. The increased expenditure was consequent upon the improved arrangements for the classes, and the efforts made to adapt the institution to the requirements of the increased number of members.

Bradford (Wilts).—The second annual report of the Literary Institution states, that the number of subscribers at the end of the year was 160, being an increase of 16. The attendance at the reading room has exceeded that of the first year. The number of issues from the library was 1,777, being an increase of 977. A mutual improvement class was organized in the early part of the present year, and was in successful operation during the winter months.

Miscellanea.

Success of the Liverpool Free Public Library.—According to the annual report of the committee of the Free Public Library, great care is taken of the books by the readers generally. Scarcely any case of wilful injury has been noticed; and out of 30,000 volumes lent only one, of the value of 2s. 6d., has been lost without replacement. Eight books have been lost by borrowers and replaced. and only in two instances has a guarantee been called on to pay for the defalcation of a reader. Some of the working classes are great readers. A labouring man in the north district has read, since the library opened, Gibbon's Rome, Universal History, Macaulay's England, and is now going through Lingard, as he says he wishes to know both sides of the question. Another in the same district has read Macaulay, the Universal History, aud is now reading Alison. At the south two working men have read Moore's and Scott's Poetical Works, and one Byron. Another has read Rollin's Ancient History, and is at present going through Alison. A poor man at the extremity of Toxteth-park has been reading the "Mirror;" he has now reached the 33rd volume. To obtain this one book, it is calculated he has already walked upwards of 100 miles. It is a noticeable fact that the larger proportion of solid reading is among the really working classes, the lighter literature more among the young men in offices and shops.—*Liverpool Albion.*

MEETINGS FOR THE ENSUING WEEK.

Tues. Civil Engineers, 8.—Renewed discussion "On the Prevention of Opaque Smoke," and "Description of the Coffer-Dams used in laying the Pipes from Richmond to Twickenham, crossing the Thames," by Mr. G. J. Munday, Assoc. Inst. C.E.
Wed. Society of Arts, 8—Prof. Crace Calvert, "On the Manufacture and Application of various Products obtained from Coal—Coal-gas excepted."
Arch. Assoc., 8½.
Thurs. Antiquaries, 8.
Fri. Philological, 8.
Sat. Botanical, 3¾.
Medical, 8.

PATENT LAW AMENDMENT ACT, 1852.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

[*From Gazette, Nov.* 10*th*, 1854.]

Dated 4*th September*, 1854.

1927. J. Parker, Birmingham—Smoke boxes of locomotives.

Dated 4*th October*, 1854.

2127. J. Kershaw, Stockport—Self-acting mules.

Dated 11*th October*, 1854.

2175. W. H. Tayler, 19, South-row, New-road—Cartouch belts.
2177. R. Cruise, Manchester—Stopping railway carriages.
2179. T. Shaw and R. Dixon, Preston—Stubbing, roving, and jack frames.

Dated 12*th October*, 1854.

2181. W. White, Kensington-park—Manures.
2183. A. A. Routledge, Neath—Detonating railway signals.
2185. A. Parker, New Milns—Ornamental weaving.

Dated 13*th October*, 1854.

2189. Sir J. C. Anderson, Bart., Fermoy—Locomotives.
2191. C. F. Stansbury, 17, Cornhill—Heating buildings. (A communication.)
2193. W. J. Barsham, Stratford—Crushing machinery.

Dated 14*th October*, 1854.

2195. J. Harrison, Brighouse—Millstone bosses.
2197. J. C. Haddon, Chelsea—Cannon and projectiles.
2199. S. Hjorth, Copenhagen—Electro-magnetic machine.
2201. R. Pinkney, 26, Long Acre—Bottles, jars, &c , and stoppering same.
2205. J. H. Pape, Paris—Boots and shoes.

Dated 16*th October*, 1854.

2207. T. E. Moore, 3, Great Titchfield-street—Apparatus for sharpening edged tools.
2209. N. Thompson, jun., New York—Life-preserving seats.
2211. W. Rossiter, Goswell-road, and M. E. Bishop, Cannon-street West—Paper pulp.
2213. W. Wain, Brunswick-street, Stamford-street—Screw propellers.

Dated 17*th October*, 1854.

2215. W. H. Child, 21, Providence-row, Finsbury—Brushes.
2217. J. Coghlan, Craven-street, Strand—Signalling on railwcys by electric telegraph.
2219. J. L. Cole, Henry-street, Limehouse—Portable drill.
2221. A. and H. Illingforth, Bradford—Combing machinery.

Dated 18*th October*, 1854.

2229. G. Hamilton, 26, Great Tower-street—Obtaining soundings.
2231. B. F. Coote, Boston, U.S.—Caulking ships.
2233. H. A. Holden, Birmingham—Roof lamps for carriages.

Dated 19*th October*, 1854.

2235. B. Nicoll, 42, Regent Circus—Shirt fronts.
2237. P. A. le Comte de Fontaine Moreau, 4, South-street, Finsbury—Grates. (A communication.)
2239. T. Biggart and A. Loudon, Dalry, N.B.—Regulating motive-power engines.

Dated 20*th October*, 1854.

2241. W. Marsh, 11, Bywater street, Chelsea—Rocking and lounging chair.
2243. T. Allan, Adelphi-terrace—Applying electricity.

Dated 21*st October*, 1854.

2245. J. Smith, Gainford-place, Barnsbury-road, and F. S. Thomas, South-terrace, Walworth—Steering apparatus.
2247. W. A. Edwards, 87, Brooke-street, Lambeth—Separating iron or steel from other metallic filings.
2249. A. G. Brade, Paris—Gas fittings. (A communication.)
2251. W. Green, Howard-buildings, Brick-lane, and J. Pickett, Duke-street—Ornamenting textile materials.

Dated 23*rd October*, 1854.

2253. H. Hales, Brighton—Propelling machinery.
2255. A. G. Brade, Paris—Manufacture of plate and thread for gold and silver lace and bullion. (A communication.)
2256. J. Maddox, Thomas-street, Brick-lane, E. Gardner, Buxton-street, and G. D. Green, Weaver-street—Weaving fringes.
2257. G. Simmons, 10, Liverpool-street—Railway bearers and sleepers.
2259. J. Scott, M.D., Edinburgh—Apparatus for surgical operations and teaching anatomy.

Dated 24*th October*, 1854.

2261. C. Cowper, 20, Southampton-buildings—Spinning silk waste. (A communication.)
2263. G. A. Somerby and C. W. Fogg, Massachusetts, U.S.—Railway brake.
2266. F. C. Warlich, Suffolk-street—Generating steam.
2267. J. Welsh, Greenock—Extracting liquids from saccharine and other matters.

Dated 25*th October*, 1854.

2269. J. Spencer, Bilston—Fence.
2271. A. S. Stocker, 11, Poultry—Tubes.
2273. W. T. Smith, New Hampstead-road, Kentish-town, and G. Hill, City-road—Winnowing, washing, sifting or separating corn, gravel, minerals, &c.
2275. C. Mather, Manchester—Boring machinery.
2277. E. Pechenard, Monthermé Canton, France—Roofs.
2279. J. H. Johnson, 47, Lincoln's-inn-fields—Circular looms. (A communication.)

Dated 26*th October*, 1854.

2281. R. A. Brooman, 166, Fleet-street—Alcohol from wood, &c. (A communication.)
2283. J. Eccles, Blackburn—Brick machinery.
2285. P. A. le Comte de Fontaine Moreau, 4, South-street, Finsbury—Bleaching, dyeing, &c., hemp and flax. (A communication.)
2287. J. Griffiths, Wolverhampton—Iron.

Dated 27*th October*, 1854.

2289. A. E. L. Bellford, 16, Castle-street, Holborn—Operating trip hammers. (A communication.)
2290. J. Turner, B. Holdsworth, and R. H. Beamer, Burnley—Power looms.
2291. A. P. Price, Margate—Calcination and oxidation of metallurgic compounds.
2292. W. Ashton, Preston—Safety valves.
2293. W. B. Wilkinson, Newcastle-on-Tyne—Fire-proof buildings.

Dated 28*th October*, 1854.

2294. H. Adcock, London—Strengthening metal castings.
2295. J. Morgan, Kidderminster—Machinery for cutting metals.
2296. G. Mumby, 9, Hunter-street, Brunswick-square—Reservoir penholders.
2297. E. Lindner, New York—Revolving breech fire-arms.
2298. J. P. Savouré, 2, Catherine-street, Strand—Gold coin detector.
2299. C. Blake, St. Leonards—Lessening effects from collisions at sea
2300. C. F. Vauthier, Dijon—Blowing machines.
2301. R. A. Brooman, 166, Fleet-street—Centrifugal machines. (A communication.)

Dated 30*th October*, 1854.

2302. O. Maggs, Bourton—Portable steam-engines.
2304. J. Mainwright, Birkenhead—Fitting up shops, offices, &c.
2305. J. C. Haddan, Chelsea—Projectiles.
2306. P. B. Chapius, Lyons—Harness used for weaving. (A communication.)
2308. R. S. Newall, Gateshead—Electric telegraphs. (A communication.)
2309. J. H. Johnson, 47, Lincoln's-inn-fields—Axle boxes. (A communication.)

Dated 31*st October*, 1854.

2311. W. Reid, University-street—Galvanic batteries.
2315. J. H. Johnson, 47, Lincoln's-inn-fields—Lithographic printing presses. (A communication.)
2317. B. Blackburn, Clapham-common—Pipes.

Dated 1*st November*, 1854.

2321. J. Rae, 1, Alpha-road, New-cross—Propelling vessels.
2323. A. V. Newton, 66, Chancery-lane—Forging wheels. (A communication.)
2325. J. Francis, New York—Waggons, caissons, &c., for transport of military stores.

INVENTION WITH COMPLETE SPECIFICATION FILED.

2319. G. Taylor, Holbeck, Leeds—Mills for grinding corn.—1st November, 1854.

WEEKLY LIST OF PATENTS SEALED.

Sealed November 10*th*, 1854.

1075. Richard Clarke Burleigh, 27, Northumberland-street, Charing-cross—Improvements in steam-engines and other engines worked by the pressure of gaseous or other fluids, which are also applicable to pumps.
1143. Thomas William Atlee and George Jobson Atlee, Birmingham—Improvements in printed or other forms applicable for bankers' cheques, orders for goods, wharfingers' and carriers' receipts, taxes and rates collectors' receipts, and various other parochial, commercial, or private purposes, whether such forms be bound up into books or not.
1213. John Whitaker and James Pickles, Todmorden—Improvements in machinery or apparatus for opening, cleaning, and preparing cotton, wool, or other fibrous substances.
1243. Richard Archibald Brooman, 166, Fleet-street—Improvement in screw propellers.
1945. James Eden, Lytham—Improvements in apparatus for drying fabrics.

Sealed November 14*th*, 1854.

1089. Anguish Honour Angustus Durant, Esq., of Tong Castle, Salop—Improvements in apparatus for sweeping chimnies and flues, and for extinguishing fires therein.
1099. Christopher Catlow, Clitheroe, and Thomas Comstive, Burnley, Lancashire—Improvements in shuttles for weaving.
1114. Joseph Hinchliffe, junior, Dam Side, near Halifax—Certain improvements in apparatus for regulating or governing the speed of steam-engines.
1115. Charles Barlow, 89, Chancery-lane—Improvements in the manufacture of metallic capsules for covering or securing bottles and other vessels.
1116. John Cunningham and William Ashley, Liverpool—Improved apparatus for ventilating ships.
1184. Thomas Bazley, Manchester—Improvements in and applicable to furnaces and vessels used in connection therewith for the manufacture of glass.
1193. Richard Tomlinson, Sale, Cheshire—The application of a new material or fabric to the manufacture of plasters for medical or surgical purposes.
1206. William Edward Wiley and Edward Lavender, Birmingham—Improvements in the manufacture of certain kinds of metallic pens.
1224. Earl of Aldborough, Stratford Lodge, county Wicklow, Ireland—Improvements in locomotion on land and water, part or parts of which are applicable to the raising of weights and the working of machinery.
1242. James Bowman Lindsay, Dundee—A mode of transmitting telegraphic messages by means of electricity through and across a body or bodies of water."
1046. Hippolyte Bordier, Orleans, France—Improvements in the manufacture of alcohol.
1262. John Wilson, 3 Albert place, High street, Stratford, West Ham, Essex—An improved pump, applicable to mines, wells, ships, fountains, and domestic purposes, and raising melted metals in foundaries, so constructed that it cannot lose water, draw grit, draw air, or freeze.
1324. George Holloway, Stroud, Gloucestershire—Improvements in sewing and embroidering machines.
1337. Joseph Oliver, Wapping, Middlesex—An improved construction of signal lantern.
1584. John Collis Browne (Physician), 2, Rodney-terrace, Cheltenham—Invention of improvements in the manufacture of camp bedsteads.
1683. Jean Chrilottome Denis Demay, 19, Leicester-sq.—Preventing the accidents on the railways with the aid of a right line of iron, and in stopping the trains almost instantaneously.
1969. Henry Robert Ramsbotham, and William Brown, Bradford—Improvements in preparing to be spun wool, cotton, hair, tow, and other fibrous materials.

WEEKLY LIST OF DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

Date of Registration.	No. in the Register.	Title.	Proprietors' Names.	Address.
Nov. 13.	3656	Carriage Lamp	Robathan and Son	Birmingham.
„ 14.	3657	Sacking of Bedstead	Thomas Bryan..................	Wolverhampton.